

Senior Phase – Grade 8

Today Planning Pack

TECHNOLOGY

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Work schedule for Technology Today – Grade 8

Term	Week	LOs & ASs	Chapter	Assessment	Resources
1	1-6	LO 1 Technological processes and skills LO 3 Technology, society and the environment	1: Technology, society and the environment	Informal and formal assessment	Technology Today Grade 8 Learner's Book and Teacher's Guide Rocket stove (if possible)
1-2	7-11	LO 1 Technological processes and skills LO 2 Technological knowledge and understanding LO 3 Technology, society and the environment	2: Information and communication	Informal and formal assessment	Technology Today Grade 8 Learner's Book and Teacher's Guide Pencil, coloured pencils, Ruler, eraser Photocopies of square grid paper Oblique grid paper
2	12-15	LO 1 Technological processes and skills LO 2 Technological knowledge and understanding LO 3 Technology, society and the environment	3: Processing materials to withstand forces and increase lifespan	Informal and formal assessment Test	Technology Today Grade 8 Learner's Book and Teacher's Guide Soccer ball, tennis ball Cooldrink can Vice, hanging light Newspaper, scrap paper, cardboard, sandpaper A bicycle Wooden objects Rusted objects Bucket, cement, sand, water Plastic sheeting Rulers of different materials String, tape, glue 2 litre plastic bottle Dowel rod 30 cm Plastic straws
3	16-19	LO 1 Technological processes and skills LO 2 Technological knowledge and understanding LO 3 Technology, society and the environment	4: Structures	Informal and formal assessment	Technology Today Grade 8 Learner's Book and Teacher's Guide Stiff foam cushion Thick card Paper fasteners Scissors Sharp-pointed object
3	20-24	LO 1 Technological processes and skills LO 2 Technological knowledge and understanding LO 3 Technology, society and the environment	5: Processing materials for packaging	Informal and formal assessment	Technology Today Grade 8 Learner's Book and Teacher's Guide Plastic supermarket bag Transparent bottle Polystyrene object Hard plastic, empty plastic pill bottles, plastic containers Scissors, old pen, ruler A bowl of boiling water Tongs, clothes peg Hot glue gun, glue sticks Lubricant Screwdriver, pliers

4	25-28	LO 1 Technological processes and skills LO 2 Technological knowledge and understanding LO 3 Technology, society and the environment	6: Gaining mechanical advantage using pulleys and belt drives	Informal and formal assessment	Technology Today Grade 8 Learner's Book and Teacher's Guide 1 bicycle per group 2 pulleys of different sizes Elastic bands to act as belts Hammer, nails Flat piece of wood Pen, Koki pen Ruler
4	29-32	LO 1 Technological processes and skills LO 2 Technological knowledge and understanding LO 3 Technology, society and the environment	7: Electrical systems	Informal and formal assessment Test	Technology Today Grade 8 Learner's Book and Teacher's Guide Circuit board, 2 cells Small 2 2 V torch bulb 6 leads for connecting the circuit Light bulb A motor Cardboard box Matchbox Electromagnet Push switch Insulated electric wire Cotton thread 4 nails Cold glue Sticky tape

Note: You need to complete 1 formal assessment task per term for Technology for the Senior Phase. This work schedule shows all the opportunities for formal assessment.

LESSON PLANS – Grade 8

Chapter 1: Technology, society and the environment

Learning Areas: Technology		Grade: 8
Duration: 12 hours		Weeks: 1 – 6
Learning Outcome	Assessment Standards	Integration
LO1 Technological processes and skills	Investigates Designs Makes Evaluates Communicates	Languages LO1, 2, 3, 4 Mathematics LO1 Arts and Culture
LO3 Technology, society and the environment	Indigenous Technology and Culture Impact of Technology Bias in Technology	LO3 Social Sciences LO1, 3 Economic and Management Sciences LO2 Natural Sciences LO1 Life Orientation LO1, 2
Content/Knowledge: Technology, society and the environment: <ul style="list-style-type: none"> Needs and wants Identifying the problem Benefits and negative impacts of technology Waste disposal 		
Learning activities	Teaching methods/approach	Resources
Introduction: Technology helps us solve everyday problems LB p1	Activity 1 - 3: Investigate technology studies TG p1	Technology Today Grade 8 Learner's Book and Teacher's Guide Rocket stove (if possible)
Lesson 1: Responsible technology LB p6	Activity 1: Investigate a South African case study to identify problems TG p3 Activity 2: Identify the benefits and negatives of cell phone use TG p3 Activity 3, Activity 4 and Activity 5: Distinguish between and identify needs and wants; draw tables TG p4 Activity 6: Match issues of rights & responsibilities TG p5 Activity 7: Conduct a waste audit TG p6	
Lesson 2: Different ways to solve the same problem LB p12	Activity 8: Compare three different products – stoves TG p6	
Lesson 3: Positive and negative effects of technology LB p14	Activity 9: Identify forms of pollution TG p7 Activity 10: Evaluate the use and effects of cars – a case study TG p7	
Lesson 4: Technology that disadvantages certain groups of people LB p16	Activity 11: Look at and identify bias in technology TG p8	
Lesson 5: Looking at the effects of disposing waste LB p17	Activity 12 and Activity 13: Discuss issues of illegal dumping and landfill sites TG p8 Activity 14 and Activity 15: Discuss and debate positive and negative effects – industry vs industrial waste TG p10	
Lesson 6: Water LB p22	Activity 16: Investigate water use at home TG p11	
Lesson 7: Capability task LB p23	Investigate, design, make, evaluate and communicate: a waste-reduction programme at school TG p11	
Lesson 8: Assessment LB p24	Assessment activity TG p12	
Assessment: Type of assessment: Formal assessment for Lessons 6, 7 and 8 Informal assessment: all other activities can be used for informal assessment Form of assessment: Rubric 2 for Lesson 6; rubric 3 for Lesson 7; memo (TG p12) for Lesson 8		
Teacher reflection:		

LESSON PLANS – Grade 8

Chapter 2: Information and communication

Learning Areas: Technology		Grade: 8
Duration: 10 hours		Weeks: 7 – 11
Learning Outcome	Assessment Standards	Integration
LO1 Technological processes and skills	Investigates Designs Makes Evaluates Communicates	Languages LO1, 2, 3 Life Orientation LO1, 2 Arts and Culture
LO2 Technological knowledge and understanding	Systems and Control: Mechanical	LO1, 3 Mathematics LO 3, 4, 5
Content/Knowledge: Communication skills: <ul style="list-style-type: none"> • Drawing techniques • Presentation of designs and solutions 		
Learning activities	Teaching methods/approach	Resources
Lesson 1: Reading information from drawings LB p26	Activity 1: Read information from drawings TG p13 Activity 2: Identify and understand information about design issues from drawings TG p14 Activity 3 and Activity 4: Make two-dimensional drawings to different scales TG p14	Technology Today Grade 8 Learner's Book and Teacher's Guide
Lesson 2: Developing solutions to design problems LB p33	Activity 5: Find and communicate solutions using drawings and notes TG p16 Activity 6 and Activity 7: Draw different views TG p17	Pencil Coloured pencils Ruler
Lesson 3: Using a working drawing to show your design LB p37	Activity 8: Read information from drawings TG p18 Activity 9, Activity 10: Draw different views using dimensions TG p19 Activity 11: Use colour and shading and show texture TG p20 Activity 12: Draw oblique views TG p21	Eraser Photocopies of square grid paper Oblique grid paper
Lesson 4: Capability task LB p45	Activity: Investigate, design and communicate TG p21	
Lesson 5: Assessment LB p46	Assessment activity TG p22	
Assessment: Type of assessment: Formal assessment for Lessons 4 and 5 Informal assessment: all other activities can be used for informal assessment Form of assessment: Rubric 3 for Lesson 4: memo (TG p22) for Lesson 5		Reinforcement: Practise drawing side views of an object Expanded opportunities: E-learning option: If a computer is an option do a design and drawing on the computer
Teacher reflection:		

LESSON PLANS – Grade 8

Chapter 3: Processing materials to withstand forces and increase lifespan

Learning Areas: Technology		Grade: 8
Duration: 8 hours		Weeks: 12 – 15
Learning Outcome	Assessment Standards	Integration
LO1 Technological processes and skills	Investigates Designs Makes Evaluates Communicates	Languages LO1, 2, 3, 4, 5 Mathematics LO5 Arts and Culture
LO2 Technological knowledge and understanding	Processing	LO1 Natural Sciences LO1
LO3 Technology, society and the environment	Indigenous Technology and Culture	Life Orientation LO4
Content/Knowledge:		
Processing materials:		
<ul style="list-style-type: none"> • Increasing strength, stability and lifespan 		
Learning activities	Teaching methods/approach	Resources
Lesson 1: Making materials strong to withstand forces LB p48	Activity 1: Identify the technology problem TG p23 Activity 2, Activity 3 and Activity 4: Identify different effects of forces, including those acting on a beam and a chair TG p23 Activity 5, Activity 6 and Activity 7: Investigate stiffness, strength and different forces TG p25	Technology Today Grade 8 Learner's Book and Teacher's Guide Soccer ball
Lesson 2: Processing materials to withstand forces LB p54	Activity 8: Compare strengthening techniques using visual data TG p26 Activity 9, Activity 10 and Activity 11: Look at composite materials and reinforced beams TG p27 Activity 12, Activity 13: Investigate and use laminating techniques TG p28	Tennis ball Cooldrink can Vice Hanging light Newspaper, scrap paper, cardboard, glue, sandpaper
Lesson 3: Increasing life expectancy of materials by processing LB p62	Activity 14 and Activity 15: Investigate rust and look at solutions TG p29 Activity 16: Look at life expectancy of paper or wood doing tests TG p30 Activity 17: Find samples of protective finishes TG p30 Activity 18: Decorate and varnish a tray TG p30	A bicycle Wooden objects Rusted objects Bucket, water Cement, sand
Lesson 4: Capability task LB p67	Activity 19: Investigate design, make and evaluate a chair TG p31	Plastic sheeting Rulers of different materials
Lesson 5: Assessment LB p68	Assessment activity TG p32	2 litre plastic bottle Dowel rod 30 cm Plastic straws Tape, string
Assessment:		Reinforcement:
Type of assessment: Formal assessment for Lessons 3, 4 and 5 Informal assessment: all other activities can be used for informal assessment		Look at forces around us
Form of assessment: Rubric 1 for Lesson 3, Rubric 3 for Lesson 4; memo (TG p32) for Lesson 5		Expanded opportunities: Read up more on materials that can withstand forces
Teacher reflection:		

LESSON PLANS – Grade 8

Chapter 4: Structures

Learning Areas: Technology		Grade: 8
Duration: 8 hours		Weeks: 16 – 19
Learning Outcome	Assessment Standards	Integration
LO1 Technological processes and skills	Investigates Designs Makes Evaluates Communicates	Languages LO1, 2, 3, 4, 5 Economic and Management Sciences LO2
LO2 Technological knowledge and understanding	Structures	Mathematics LO3 Arts and Culture
LO3 Technology, society and the environment	Indigenous Technology and Culture Impact of Technology Bias in Technology	LO1 Natural Sciences LO1, 2
Content/Knowledge:		
Structures:		
<ul style="list-style-type: none"> • Learn how to make structures rigid and stable • Find out how bridges affect our lives • Design and build a model of a water tower 		
Learning activities	Teaching methods/approach	Resources
Lesson 1: Parts of structures LB p70	Activity 1: Identify the technology problem TG p33 Activity 2: Investigate parts of structures TG p33	Technology Today Grade 8 Learner's Book and Teacher's Guide A stiff foam cushion Thick card Paper fasteners Scissors A sharp-pointed object
Lesson 2: Beams in structures LB p71	Activity 3: Identify support of beams TG p34 Activity 4, Activity 5, Activity 6, Activity 7: Identify forces in beams TG p34	
Lesson 3: Bridges as structures LB p74	Activity 8: How bridges meet the peoples' needs – read a case study and investigate the role of bridges TG p36 Activity 9: Answer questions about beams in bridges TG p37 Activity 10: Investigate how an arch works TG p38 Activity 11: Make a model of a suspension bridge TG p38 Activity 12: Describe forces in the cables of bridges TG p39	
Lesson 4: Frame structures or trusses LB p80	Activity 13: Investigate rigidity – make and reinforce a rectangular frame TG p39 Activity 14: Look at cost-effective solutions TG p40 Activity 15: Investigate triangulation in trusses TG p40 Activity 16: Identify and tabulate types of forces in structures TG p41 Activity 17: Investigate the stability of structures TG p42 Activity 18, Activity 19: Look at centre of gravity and stability of towers and pylons TG p42	
Lesson 5: Capability task LB p89	Design, make, investigate, evaluate, communicate: a model of a water tower TG p43	
Lesson 6: Assessment LB p90	Assessment activity TG p44	
Assessment:		Reinforcement:
Type of assessment: Formal assessment for Lessons 3, 5 and 6 Informal assessment: all other activities can be used for informal assessment Form of assessment: Rubric 1 for Lesson 3; rubric 3 for Lesson 5 and memo (TG p44) for Lesson 6		Assist learners with reading difficulties Expanded opportunities: Identify structures and members in local area Sketch a beam in a bridge
Teacher reflection:		

LESSON PLANS – Grade 8

Chapter 5: Processing materials for packaging

Learning Areas: Technology		Grade: 8
Duration: 10 hours		Weeks: 20 – 24
Learning Outcome	Assessment Standards	Integration
LO1 Technological processes and skills	Investigates Designs Makes Evaluates Communicates	Languages LO1, 2, 3, 4, 5 Mathematics LO1, 4, 5 Arts and Culture
LO2 Technological knowledge and understanding	Structures Processing	LO1 Social Sciences (Geography)
LO3 Technology, society and the environment	Indigenous Technology and Culture Impact of Technology Bias in Technology	LO3 Economic and Management Sciences LO4 Natural Sciences LO1, 2, 3 Life Orientation LO1, 5
Content/Knowledge: Processing packaging: <ul style="list-style-type: none"> • The use of plastic • Classifying plastic • Environmental issues • Recycling 		
Learning activities	Teaching methods/approach	Resources
Lesson 1: Types of packaging LB p92	Activity 1: Identify the technology problem TG p45 Activity 2, Activity 3: Classify and discuss types of plastic packaging; discuss advantages and disadvantages TG p45	Technology Today Grade 8 Learner's Book and Teacher's Guide Plastic supermarket bag Transparent bottle Old pen, ruler Polystyrene object Hard plastic Scissors Empty plastic pill bottles Plastic containers code 1(PET) Boiling water Tongs Clothes peg Hot glue gun Glue sticks Lubricant Screwdriver, pliers
Lesson 2: The properties of packaging LB p93	Activity 4: Investigate and tabulate different properties of packaging that are necessary TG p46	
Lesson 3: Different types of plastics LB p95	Activity 5: Test properties of different types of plastic TG p46 Activity 6: Identify recyclable plastics TG p47	
Lesson 4: Processing plastic LB p98	Activity 7, Activity 8: Investigate injection moulding processes and make a compression moulded plastic container TG p47	
Lesson 5: Plastic, society and the environment LB p104	Activity 9, Activity 10, Activity 11: Investigate plastic litter and recycling and make a recycled plastic product TG p48	
Lesson 6: Capability task LB p107	Investigate design, make, evaluate and communicate: a moulded plastic container TG p50	
Lesson 7: Assessment LB p108	Assessment activity TG p51	
Assessment: Type of assessment: Formal assessment for Lessons 2, 3, 6 and 7 Informal assessment: all other activities can be used for informal assessment Form of assessment: Rubric 1 for Lessons 3; rubric 2 for Lesson 2; rubric 3 for Lesson 6; memo (TG p51) for Lesson 7		Reinforcement: Support learners with reading difficulties Expanded opportunities: Draw a bar graph of types of litter Initiate a zero litter campaign at school
Teacher reflection:		

LESSON PLANS – Grade 8

Chapter 6: Gaining mechanical advantage using pulleys and belt drives

Learning Areas: Technology		Grade: 8
Duration: 8 hours		Weeks: 25 – 28
Learning Outcome	Assessment Standards	Integration
LO1 Technological processes and skills	Investigates Designs Makes Evaluates Communicates	Languages LO1, 2, 3, 4, 5 Mathematics LO1, 4 Social Sciences (History)
LO2 Technological knowledge and understanding	Systems and Control: Mechanical	LO2 Economic and Management Sciences
LO3 Technology, society and the environment	Impact of Technology	LO4 Natural Sciences LO1, 2 Arts and Culture LO1
Content/Knowledge: Systems and control: <ul style="list-style-type: none"> • Mechanisms • Mechanical advantage • Pulleys and belt drives 		
Learning activities	Teaching methods/approach	Resources
Lesson 1: Pulleys LB p110	Activity 1: Identify the technology problem TG p52 Activity 2: Investigate how pulleys make work easier TG p52 Activity 3: Make a pulley TG p53	Technology Today Grade 8 Learner's Book and Teacher's Guide 1 bicycle per group 2 pulleys of different sizes Elastic bands to act as belts Nails Flat piece of wood Hammer Pen Ruler Koki pen
Lesson 2: Using pulleys to lift loads LB p113	Activity 4: Investigate the effort needed to lift an object using a simple pulley TG p53 Activity 5: Investigate using a block and tackle TG p54 Activity 6: Comparing simple and compound pulleys TG p54 Activity 7, Activity 8: Understand and calculate mechanical advantage TG p55	
Lesson 3: Belt drives LB p118	Activity 9: Make a model roundabout TG p57 Activity 10: Experiment with pulleys and belts to change rotation direction TG p57 Activity 11: Investigate how pulley sizes affect rotation speed TG p58 Activity 12: Calculate velocity ratio TG p59	
Lesson 4: Chain and sprocket systems LB p124	Activity 13: Identify uses of chains and sprockets TG p59	
Lesson 5: Mechanical advantage in other mechanical systems LB p125	Activity 14, Activity 15: Calculate the mechanical advantage of levers and gears TG p60 Activity 16: Explain how machines make our lives easier TG p61	
Lesson 6: Capability task LB p129	Investigate, design, make, evaluate, communicate: a model stage using pulley systems TG p61	
Lesson 7: Assessment LB p130	Assessment activity TG p62	
Assessment: Type of assessment: Formal assessment for Lessons 3, 6 and 7 Informal assessment: all other activities can be used for informal assessment Form of assessment: Rubric 1 for Lesson 3; rubric 3 for Lesson 6; memo (TG p62) for Lesson 7		Reinforcement: Review and discuss steps in Activity 3 Expanded opportunities: Present working drawings
Teacher reflection:		

LESSON PLANS – Grade 8

Chapter 7: Electrical systems

Learning Areas: Technology		Grade: 8
Duration: 8 hours		Weeks: 29 – 32
Learning Outcome	Assessment Standards	Integration
LO1 Technological processes and skills	Investigates Designs Makes Evaluates Communicates	Languages LO1, 2, 3, 4, 5 Mathematics LO5 Social Sciences (Geography)
LO2 Technological knowledge and understanding	Systems and Control: Electrical	LO3 Natural Sciences
LO3 Technology, society and the environment	Impact of Technology	LO1, 2, 3, 4 Arts and Culture LO4
Content/Knowledge:		
<ul style="list-style-type: none"> • Systems and control • Electrical systems: circuits • Circuit diagrams • Control logic • Electromagnetism 		
Learning activities	Teaching methods/approach	Resources
Lesson 1: Revising electrical circuits LB p132	Activity 1: Identify and investigate a technology problem TG p64 Activity 2: Make an electrical circuit TG p65 Activity 3: Make your own symbols for a circuit diagram TG p66	Technology Today Grade 8 Learner's Book and Teacher's Guide
Lesson 2: Communicating through circuit diagrams LB p134	Activity 4: Look at and draw standard symbols for circuit diagrams TG p66	Circuit board 2 cells, Small 2 2 V torch bulb 6 leads for connecting the circuit
Lesson 3: Electrical systems diagrams LB p136	Activity 5: Draw a systems diagram TG p67	A light bulb A motor
Lesson 4: Electrical control systems LB p137	Activity 6, Activity 7, Activity 8: Investigate AND/OR logic control circuits TG p68 Activity 9: Write a truth table for OR logic TG p69 Activity 10, Activity 11: Solve a problem and check solution using devices with logic gates TG p70 Activity 12: Use control logic to solve a problem TG p70 Activity 13: Draw a diagram to show a system TG p71	Cardboard box Matchbox Electromagnet Push switch Insulated electric wire Cotton thread 4 nails
Lesson 5: Electromagnetism LB p145	Activity 14: Make and play a game using an electromagnet TG p72	Cold glue Sticky tape
Lesson 6: Capability task LB p149	Investigate, design, make, evaluate, communicate: a model security door TG p72	
Lesson 7: Assessment LB p150	Assessment activity TG p73	
Assessment:		Reinforcement:
Type of assessment: Formal assessment for Lessons 1, 6 and 7 Informal assessment: all other activities can be used for informal assessment		Assist with assembly of circuits
Form of assessment: Rubric 1 for Lesson 1; rubric 3 for Lesson 6; memo (TG p73) for Lesson 7		Expanded opportunities: Find out what different components do e.g. resistors
Teacher reflection:		

RUBRIC 1: Practical test/model making

Activity:				Name:			
Date:				Grade:			
	Level 7 An excellent achievement far exceeding expected requirements	Level 6 A very good achievement where all requirements have been met at a very high standard	Level 5 A good achievement meeting most of the requirements	Level 4 A fair achievement meeting an adequate portion of the requirements	Level 3 A moderate achievement partially satisfying the requirements	Level 2 An elementary achievement marginally satisfying the requirements	Level 1 Unsatisfactory achievement. Requirements not met
Recognise and understand key concepts and ideas							
Follow instructions; measure accurately							
Work safely and neatly							
Evaluate and experiment in a scientific way							
Draw conclusions giving reasons							

RUBRIC 2: Visual presentation (drawing; poster; collage; mind map)

Activity:				Name:			
Date:				Grade:			
	Level 7 Excellent achievement far exceeding expected requirements	Level 6 A very good achievement where all requirements have been met at a very high standard	Level 5 A good achievement meeting most of the requirements	Level 4 A fair achievement meeting an adequate portion of the requirements	Level 3 A moderate achievement partially satisfying the requirements	Level 2 An elementary achievement marginally satisfying the requirements	Level 1 An unsatisfactory achievement. Requirements not met
Presentation /Appearance	Exceptionally eye-catching; outstandingly creative; neat	Eye-catching; creative; neat	Attractive; fairly creative and neat	Merely presentable; little creativity; untidy	Visually unappealing and sloppy	Slapdash presentation messy	Activity misunderstood or incomplete
Information	Expresses excellent evidence of topic; accurate in scale	Good clear evidence of topic; factually correct scale	Some reasonable ideas and evidence of topic; mostly correct scale	Some evidence of topic; merely adequate presentation of scale	No clear ideas; little accuracy or detail	No clear ideas expressed; inaccurate scale and detail	
Depth of understanding	Shows maturity and great insight into drawing techniques	Shows some maturity and insight into drawing techniques	Shows partial maturity and insight into drawing techniques	Shows little maturity and insight into drawing techniques	No evidence of insight or maturity into drawing techniques	No insight or evidence of care or thoughtfulness into drawing techniques	

RUBRIC 3: Capability task (LO1; LO2; LO3)

Activity:			Name:				
Date:			Grade:				
	Level 7 Excellent achievement far exceeding expected requirements	Level 6 A very good achievement where all requirements have been met at a very high standard	Level 5 A good achievement meeting most of the requirements	Level 4 A fair achievement meeting an adequate portion of the requirements	Level 3 A moderate achievement partially satisfying the requirements	Level 2 An elementary achievement marginally satisfying the requirements	Level 1 Unsatisfactory achievement. Requirements not met
Investigate							
Design							
Make							
Evaluate							
Communicate							
Technological knowledge & understanding							
Technology, society and environment							